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HUDSON BAY BUTTERFLIES AND A NEW TRANSITION FORM (LEPID.).

BY A. V. HARPER

McCreary, Man., Canada

The year of 1932 gave me the much desired opportunity of visiting that vast territory of northern Manitoba which stretches between my home town of McCreary and the terminal of the Hudson Bay Railroad at Fort Churchill on Hudson Bay. Leaving June 1st the first stop for exploration was at The Pas some 400 miles northward. The scenery en route was mostly prairie with some mixed woods, though the last 50 miles showed more muskeg and swamp spruce. The Pas is a small frontier settlement of about 3000 inhabitants and many trappers still make this place their summer headquarters before proceeding north for winter operations. In Lepidoptera, the butterfly *Brenthis freija* was flying in considerable numbers and I also took *Brenthis dawsoni* in the spruce swamps. Two collecting days were spent at The Pas.

My next stop was at Wabowden, a small Indian village nestled among numerous lakes and rocky situations. Collecting was better here than at The Pas and I was fortunate to have a few warm, clear days; however, it was a little early in the year for everything to be out in quantity. A few *Brenthis saga* were taken and *Brenthis triclaris* (near it) were just coming out.

Leaving this little railroad point and continuing northward, the train crosses the Nelson River at Kettle Rapids, a very inviting looking spot, though I did not stop over. From here on the trees get smaller and shorter, also farther apart, and the majority of them seem killed by prairie fires, possibly started by the railroad. Arriving at Herchmer about 5 o'clock in the afternoon, I lost no time in swinging the net, as the weather was good and of course the days are long. Most of the collecting was done along the Owl River and the best spot seemed on a gravel ridge east of the railroad. *Frigga* was common

and I also took *Eurymus palæno chippewa* and what I think is *Eurymus gigantea*. I worked this region over until June 30th and then decided to move on to Fort Churchill. Between there and Hudson Bay there are about 35 miles of the first moss barrens and then the railway runs through the thick tamarac swamps along the Churchill River. This tamarac is amazingly thick and extends to within five miles of Churchill where the real Arctic Barrens begin.

Churchill is the farthest north deep seaport on the American continent, being well situated at the mouth of the Churchill River which makes a natural opening and protected harbor into Hudson Bay. A feature of the town is the giant grain elevator which can be seen for miles around. My real reason for coming to Churchill was to locate and collect that rare Colias butterfly *Eurymus nastes moinna* Stkr. at its type locality. This is the butterfly which the late Dr. Wm. Barnes of Decatur, Ill., wished to obtain, but was evidently unable to. After tramping around for several days I eventually found a colony of them about 4 miles southeast of the elevator along the coast on a few acres of level ground among the rocks. And was I happy! Like most Colias these butterflies like warm, sunny days and I was favored with quite a streak of good weather during my three weeks' stay at Churchill. Mosquitoes are bad, of course, as is a species of small, black fly and the face and hands must be protected at all times. Along with *moinna*, I took *Plebius aquilo*. A few *Eurymus hecla glacialis* were also caught though they are very swift fliers and not local in habits like *moinna*. *Erebia disa* and *rossi* were in fair numbers and also several *Oeneis*. I took a few specimens of *Papilio machaon hudsonianus* during my stay; this is a new Papilio described by A. H. Clark, the Echinodermist of Washington, D. C., and evidently approved by F. H. Benjamin. The best region for butterflies around Churchill was along the rocks near the Bay, though I also collected up the Churchill River a distance. The weather gets fairly warm towards the middle of the day and as the days are about 20 hours long, one has plenty of time comparatively. It is estimated that there are over 100 varieties of wild flowers in the immediate district and an equal number of migratory birds which nest there.

I left Churchill on July 22nd for the return journey home

and considered that I had done well in Lepidoptera, having taken about 15 species which included several *Sphingidæ* and *Apantesis*. The return trip took three days, not long considering the distance. The item of rail fare is the principal cost on an expedition into the Bay region. The Canadian National gladly furnishes estimates to anyone interested, so I am told.

I take this opportunity of describing a new tr. f. as follows:

Brenthis freija gunderi Harper, new tr. f.

Upper side: Primaries heavily black suffused through discal area with cell spots much enlarged and spots through base flattened to fill interspaces. Secondaries having the marginal row of black spots fused outwardly and joining the lunate row. Discal and basal areas black as in typicals. *Under side:* Black maculation of upper sides repeated as on under sides of primaries; secondaries showing duplicate tendencies of suffusion as indicated on upper surfaces. This transition form representing the type for melanifusism is only a partial development, but is recorded as an example of change of pattern.. The name *freija* Thun. properly represents a European habitat; perhaps the name *tarquinius* Curt. really represents the Canadian group, though those Labrador examples are said to vary as well.

Holotype male, McCreary, Manitoba, Canada. May 22nd, 1932. Expanse of type 37mm. Collected by myself and type deposited in the Calif. Academy of Sciences at San Francisco, Calif. as an "indefinite loan" for safe keeping. It is named after Mr. J. D. Gunder of Pasadena, Calif.

A New Record of Arizona Hemiptera

Margus repletus Van D. known from the type taken by Mr. Fordyce Grinnell in Palm Canyon, San Jacinto Mountains, California, and two specimens taken by L. L. Muchmore in Los Angeles county and Whittier, California, all in the California Academy of Sciences. A specimen has recently been received through the courtesy of Mr. A. H. Caldwell which bears the following label, "Maricopa County, Ariz., May 15, '27, J. H. O'Dell Collector."

NOTES ON THE SPECIES OF THE OCHROPTENA—CIRCUMLUCENS GROUP OF PAPAIPEMA

(Lepid., Phalænidæ)

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Submission of specimens for identification has caused the writer to investigate the present group. Two previously described species and one previously described subspecies are discussed; one new species and one new subspecies are described. Thanks are due to Mr. Henry Bird who has reviewed the data on which this paper is based and examined the types of the new species and subspecies.

PAPAIPEMA OCHROPTENA OCHROPTENA (Dyar)

Hydrœcia circumlucens Smith, Trans. Am. Ent. Soc. 1899 vol. 26, p. 43, in part ("cotype"; not types).

Gortyna ochroptena Dyar, Can. Ent. 1908, vol. 40, p. 77.

Papaipema ochroptena, Bird, Can. Ent., 1925, vol. 57, p. 304.

See notes under the following subspecies.

PAPAIPEMA OCHROPTENA HUMULI (Bird)

Hydrœcia circumlucens Smith, Trans. Am. Ent. Soc. 1899, vol. 26, p. 43, in part ("♀ type", which is a male, and some "cotypes"; not "♂ type"), pl. 2, f. 31 ♂ genitalia.

Papaipema humuli Bird, Can. Ent., 1915, vol. 47, p. 113.

Papaipema ochroptena humuli, Bird, Can. Ent., 1925, vol. 57, pp. 304-306.

The truncate nature of the distal portion of the harpe, together with the clasper being sharply bent at nearly a ninety-degree angle, are characters which differentiate the hop-feeding species, *ochroptena*, from its allies.

One specimen from Cartwright, Manitoba, is almost identical with typical (Colorado) *ochroptena*, while five others from the same locality show some rufous shadings and, in this respect, are intermediate to the eastern race, *humuli*.

PAPAIPEMA CIRCUMLUCENS CIRCUMLUCENS (Smith)

Hydrœcia circumlucens Smith, Trans. Am. Ent. Soc., 1899, vol. 26, p. 43 in part ("♂ type" and some "cotypes"; not "♀ type" which is a male, some "cotypes", and pl. 2, f. 31 ♂ genitalia).

Hydræcia baptisiæ Bird, Can. Ent., 1902, vol. 34, p. 109, pl. 3.
Papaipema circumlucens, Bird, Can. Ent., 1916, vol. 48, p. 16; Bird, Can. Ent., 1925, vol. 57, pp. 304-306.
Papaipema baptisiæ, Bird, Can, Ent., 1916, vol. 48, p. 17 (in synonymy *circumlucens*).

The non-truncate distal portion of the harpe, and the evenly curved clasper, are characters which differentiate the present species from *ochroptena.*

Papaipema circumlucens vaha Benjamin, new subspecies

Papaipema ochroptena, Barnes & McDunnough, Contrib. Nat. Hist. Lep. N. Am., 1912, vol. 1, no. 4, p. 53, in part (not pl. 25, f. 11).

This subspecies bears the same relationship to the darker typical *circumlucens* that *ochroptena ochroptena* bears to the darker *ochroptena humuli* and in consequence usually has been misidentified as *ochroptena.*

Size and markings essentially the same as in specimens of *circumlucens* from eastern localities, but the ground color of the fore wing pale yellow, scarcely powdered with rufous, the markings proportionately pale and uncontrasting. Hind wing straw color, almost devoid of the rufous tints and shadings conspicuous on specimens of typical *circumlucens.* Male genitalia essentially the same as those of the eastern (typical) subspecies. *Expanse:* ♂, 37 mm; ♀, 38 mm.

Holotype ♂, *Allotype* ♀, "X-16-8" and "IX-21-9", both Provo, Utah (Tom Spalding). *Cat. No.* 44735, U.S.N.M.

Notes: Additional specimens include a male labeled Denver, Colo., 16-23 Sept. and which has been discussed by Barnes and McDunnough as *ochroptena,* and a female labeled Richfield, Utah, 6 Sept. 1929 (David E. Fox).

Papaipema depictata Benjamin, n. sp.

Papaipema ochroptena, Barnes & McDunnough, Contrib. Nat. Hist. Lep. N. Am., 1912, vol. 1, no. 4, p. 53, in part, pl. 25, f. 11.

Color and appearance similar to *vaha*, but the fore wing with the transverse anterior space between costa and submedian fold and all of the subterminal space disconcolorously filled with dull purplish fuscous, which also strongly marks the veins and forms a heavy connecting bar between the orbicular and the reniform, the wing in consequence appearing contrastingly marked, a feature further emphasized by the lack of the usual rufous powder-

ings; reniform somewhat narrower than normal, the surrounding spots slightly reduced in size; median shade unusually erect and less nearly parallel with the transverse posterior line than normal in the group. Hind wing pale yellow slightly tinged with purple-rufous shadings. Male genitalia similar to those of *circumlucens*, but the uncus more of a diamond shape, and the penis possessing a longer spatulate spine. *Expanse:* ♂, 40 mm; ♀, 37 mm.

Holotype ♂, *Allotype* ♀, White Mts., Ariz. Cat. No. 44736 U.S.N.M.

Notes: The allotype has been figured by Barnes and McDunnough as *ochroptena*. See notes under *P. ochroptena vaha*.

Another Rare Species Located

It was during the summer of 1932 that my friend, Mr. Doudoroff brought a splendid looking Œneis back from a collecting trip in Mendocino County. Upon investigation I found that my suspicions were well founded and therefore a great deal of time was spent this season trying to obtain a series. By the end of June we succeeded in catching a number of specimens in the ravines north of Manchester, California. However, they were all males while the specimen obtained in 1932 was a female. These Œneis I consider one of the most beautiful of that group, and probably one of the rarest. The species is none other than *Œneis iduna* and in many collections is probably one of the rarest butterflies.

It would be an interesting thing for Lepidopterists in the future to attempt to locate a spot where *iduna* flies more abundantly, as the typical form seems to be very local. We found none at any great distance north of Point Arena and all attempts to find them more than thirty miles south of Manchester were also futile. They are very difficult to locate and not more than one specimen was ever seen at one time. Future reports on this species would be interesting.—R. F. Sternitsky.

NOTES ON SOME HISPINI AND CASSIDINI AND DESCRIPTIONS OF NEW SPECIES

(Coleoptera, Chrysomelidæ)

BY CHAS. SCHAEFFER

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Anisostena arizonica Schaeffer, new sp.

Form and size of *nunnenmacheri;* color of upper surface reddish castaneous with more or less distinct dark metallic tint; underside dark metallic, legs and antennæ reddish, three intervals on each elytron distinctly costate. Head dull, alutaceous, with a few scattered punctures on each side of the deep frontal impression. Prothorax about as long as wide at base, sides scarcely arcuate and feebly narrowing to apical angles which are rather indistinct, basal angles distinct, disk closely and coarsely punctate. Elytra wider than prothorax at base, humeri obliquely rounded, three intervals on each side distinctly costate, the serial punctures between these coarse and close; lateral and apical margins entire, not serrate. Ventral segments subopaque, each with a transverse row of very fine punctures near apical margin. Length: 3 mm.

Arizona.[1]

The darker coloration of upper and under side, each elytron distinctly tricostate, and the more densely punctate pronotum separates this species from *nunnenmacheri*, the only one of our species with which it could be confused. *A. nigrita* is a larger species with relatively stouter antennal joints and larger elytral punctures.

Anisostena texana Schaeffer, new sp.

Near *ariadne* in color and form, but the red color of prothorax is darker, the elytra are slightly narrower and a little longer, the first interval is feebly convex but not costate except apically, the second subcostate and the third narrow and acute; the space separating the serial punctures from each other, is not raised as in *ariadne*; the prothorax is longer and the third antennal joint is more elongate in *texana*. Length: 4.25 mm.

Brownsville, Texas, (O. Dietz).

This species is rather close to the Arizona specimens which the late Julius Weise doubtfully determined as *funesta* Baly, of

[1] Types of new species in collection of the author.

which one specimen has a very obscure reddish prothorax without metallic tint, except being darker along anterior margin as usual in the species with reddish prothorax. However, the prothorax in *texana* appears to be a little longer, the sides from an anterior view feebly diverging basally — in these *funesta* slightly converging — otherwise the sculpture of prothorax and elytra is nearly alike in both.

Anisostena kansana Schaeffer, new sp.

Head, underside and legs black with faint metallic tint; prothorax red; elytra bright bluish green. Head opaque, with the usual frontal impression. Prothorax at base as wide as long, sides moderately arcuate, slightly narrowing from about middle to apical angles which are feebly distinct; disk irregularly punctuate, punctures almost absent at middle, a little more numerous at sides and base. Elytra a little wider than the prothorax at base, humeri obliquely rounded, lateral margins not serrate, apical margins feebly and distantly serrate; first and second elytral intervals, between the geminate rows of punctures, rather flat, the second convex apically, the third narrow, carina-like. Metasternum with a few punctures, ventral segments impunctate, except the last which is distinctly punctate. Length: 5 mm.

Medora, Kansas (W. Knaus).

The wider pronotum, with slightly more arcuate sides and sparser irregular punctuation, also the bright blue color of elytra with the first interval flat, and the second nearly so, distinguish this species from those that are bicolored above.

Anisostena bicolor Smith

This species, described and recorded so far only from New Mexico, occurs also in Arizona.

Anoplitis rosea Weber

This species does not seem to be well recognized as I have seen it usually mixed in collections with *inæqualis*. The color and markings are the same and are as variable as in the latter; the antennæ in *rosea*, even in the darker specimens, are apparently always pale, in *inæqualis* usually black in the dark as well as pale specimens, though occasionally a specimen is found with pale antennæ. The elytra are very distinctly and rather suddenly dilated near apex in *rosea* as in *Baliosus ruber* and the apices are more broadly and feebly rounded than in *inæqualis;* the third costa is more distinctly arcuately elevated near apex and the second costa unites apically with the third in a

rather broad arc, in *inæqualis* usually when connected, in a more or less acute point.

The specimens with black or piceous elytra and the apex more or less pale are var. *philemon*.

It is not a rare species but apparently as common as *inæqualis*, at least in certain localities.

Anoplitis ancoroides Schaeffer, new sp.

Flavous, head posteriorly, antennæ, lateral margins of pronotum narrowly and a short, oblique, more or less distinct line on each side of middle black; elytral suture bluish black from the scutellum to about middle, dilated at its apex on each side into a short branch, reaching to and involving the first costa, another short oblique branch is situated on each side a little below the scutellum, slightly above the short apical branch on the second costa is a small obscure spot which is more or less connected with the apical branch producing a somewhat anchor-like design, laterally near apex are three small spots and below these from the first costa to the suture an oblique line black. Prothorax nearly parallel-sided to about apical third, thence obliquely narrowing to apex, apical angles produced, sub-acute; surface rather coarsely and densely punctate. Elytra parallel-sided, not wider apically, lateral and apical margins very indistinctly and distantly serrulate; surface with three costiform elevations and four geminate rows of coarse punctures. Body below black or piceous, last ventral segment and legs pale. Length: 3 mm.

Merchantville, New Jersey.

This species looks at first sight like a more feebly marked specimen of the variable *inæqualis*, however, the elytra are not wider apically and the elytral markings are different, that is, the laterally pale specimens of *inæqualis* never have the suture marked as in *ancoroides* but in great part pale.

Brachycoryna lateralis Schaeffer, new sp.

Form and coloration of *longula* but larger, pronotum shining, with punctures less close and usually well separated. Head black with faint greenish tint, on each side of the moderately impressed median line an irregular row of punctures which are more or less longitudinally confluent. Pronotum luteous, wider than long, sides nearly straight and feebly narrowing near apex, surface with moderately large punctures, sparsely placed at middle, more closely at sides and base. Scutellum black. Elytra rather elongate-oval; humeri obliquely rounded; lateral and apical margins not dentate; surface with three costiform intervals and four geminate rows of moderately large punctures; color flavous with two

dark spots on each elytron, one at about apical third near the elevated suture and one, slightly above the latter, on the second elevated interval. Body beneath dark metallic green; legs pale, tarsi black. Length: 2.5 mm.

Fort Collins, Colorado.

This species looks like a larger specimen of *longula* but the pronotum is less densely punctuate and more shining, the elytral punctures are less coarse and the interval between the second and third costæ is nearly equal to that between the third and lateral margin and has two distinct rows of punctures, while in *longula* the interval between the second and third costæ is much wider than between the third costa and lateral margin, and has three or four very confused irregular rows of punctures as in the other species of the genus. The tarsi are formed similar to those of *Stenopodius flavidus*, that is, the third joint is short not dilated nor prolonged on each side and subequal in size to each of the preceding joints.

The tarsal structure of this species somewhat bridges over the difference between *Brachycoryna* and *Stenopodius*.

Stenopodius flavidus texanus Schaeffer, n. var.

Same coloration, form, sculpture of prothorax and elytra as in typical *flavidus*, but slightly smaller, the median prothoracic lobe at anterior margin narrower, the impression between the latter and lateral angles deeper and darker colored, causing the anterior angles and the narrow median lobe to appear more prominent. The ante-scutellar basal lobe is rather indistinct. Length: 3.5 mm.

Brownsville, Texas.

A small number of specimens collected by the late Ottomar Dietz and myself. They were taken by sweeping in and around old and neglected cotton fields.

MICRORHOPALA RUBROLINEATA Mann

The majority of specimens taken in the Huachuca Mountains, Arizona, have the lateral red vitta on each elytron very wide below the humeral callus as in the variety *vulnerata*, in only a few specimens is this vitta narrow, occupying not more than the wider fourth interval as in the California specimens.

MICRORHOPALA RUBROLINEATA VULNERATA Horn

This variety occurs also in New Mexico (Ft. Wingate, Aug.)

The lateral yellowish elytral vitta is reduced in the single specimen from the latter locality to a wide, elongate, humeral spot not quite extending to the middle of the lateral margin.

PENTISPA SUTURALIS VITTULA Weise

This variety, listed in the Leng catalogue, was described from Mexico but apparently does not occur in the United States. It differs from the typical form in the possession of a blue discal vitta on each elytron which is very narrow basally, but becomes very wide apically.

Mr. Julian Weise[1] has placed my *Microrhopala arizonica* as a synonym of *Pentispa suturalis*, possibly correctly so. However, my Arizona specimens do not entirely agree with Baly's description of *suturalis*. The underside and the scutellum of the latter species are said to be black, both distinctly blue in *arizonica*, in the latter there is a dark blue median vitta on the pronotum, variable in length but always present, and lateral margins narrowly dark, the apical and also lateral margins of elytra in about apical third are narrowly blue, all of which is not mentioned in the description of *suturalis*. The apical and lateral margins in typical *suturalis* are apparently reddish like the rest of the surface as Weise says of the variety "auch der Seitenrand (of elytra) ist an der hinteren Aussenecke dunkel gesäumt", so this is apparently not so in typical *suturalis*.

CASSIDA FLAVEOLA Thunb.

A specimen of this European species was collected at Milford, Pa., July 2, by Mr. A. Nicolay, and Mr. Bowdoin has taken specimens near Baltimore, Md., in May, which extends its distribution further south than recorded so far.

CASSIDA NEBULOSA L.

The occurrence of this European species in North America is apparently based on a single specimen received by the late Dr. Horn from A. Bolter and said to have been collected near the Santa Anna River in California. If the specimen really came from California the species does not seem to have gained a foothold there as I am not aware that it has ever been found again. The doubtful New York locality in the Leng catalogue is a specimen of *flaveola* which I had taken at Suffern, New York, and recorded quite some years ago in one of the meet-

[1] Ann. Soc. Ent. Belg. vol. 55, p. 73, 1911.

ings of the N. Y. Entomological Society as being possibly the European *C. nebulosa.*

Chelymorpha phytophagica luteata Schaeffer, n. var.

Differs from typical *phytophagica* in being flavous above with the usual black spots on prothorax and elytra; below flavous except a median fascia on each of the first four ventral segments, also femora at apex and tibiæ laterally black. Punctuation and pubescence of upper surface as in typical *phytophagica.* Length: 9 mm.

Tucson, Arizona, August.

This is possibly only an individual color variation, regarding the largely pale underside and legs, the yellowish color above may be due to sexual immaturity. However, it resembles *cassidea lewisi* so closely that it is apt to be mistaken for that form. It differs from the latter in having the upper surface pubescent and the elytral epipleuræ very distinct in its entire length, the epipleuræ in *lewisi* apically is entirely different and formed as in *cassidea* and its two varieties *geniculata* and *17-punctata.*

Psalidonota texana Schaeffer, n. sp.

Rotundate, flavo-testaceous; elytral punctures more or less castaneous, the suture more or less and the post-scutellar sutural gibbosity, reddish; body beneath more or less black, except laterally and ventral segments and legs, which are pale; antennæ pale, last joint black. Prothorax transverse, the base rather feebly sinuate on each side, median lobe broad and truncate; sides straight, oblique; anterior margin broadly arcuate, anteriorly and laterally widely hyaline and reticulate; surface smooth and impunctate. Elytra wider than the prothorax, deeply sinuate on each side of the base, apices conjointly rounded; humeral callus distinct; disc convex, with a rather strong, transverse, post-scutellar gibbosity, and rows of coarse punctures which are irregularly interrupted by smooth elevated spaces, two of these smooth lines extending obliquely from the base of the gibbosity to the lateral hyaline margin or nearly so, producing a more or less distinct wishbone-like pattern; the margins rather widely expanded anteriorly, becoming much narrower apically, subhyaline and reticulate. Length: 8 mm.

Brownsville, Texas.

This is the species identified, I believe, by the late Dr. Horn as *leprosa* and is so listed in our catalogue. However, *leprosa* is a much larger species, 11 mm. in length, has the under side entirely pale and on each elytron, below middle, one oblique

smooth space which becomes much wider externally. It agrees much better with the description of *marmorata* but that species is 9-9.5 mm. in length and has the elytra feebly gibbous, while in *texana* the elytra are rather strongly gibbous and even more suddenly so anteriorly than in *leprosa*, that is, if the outline drawings on plate 10, figs. 1a and 2a of Vol. VI, pt. 2 of the Biologia are correct.

WHY PERPETUATE ERRORS?

A number of errors have crept into the nomenclature of our insects that seem to call for a protest. I will mention three here that are already causing confusion in the minds of some of our younger entomologists and the longer they are in use the more difficult it will be to correct them. In 1926 Barnes and Benjamin published in the Bulletin of the Southern California Academy of Sciences a Check List of the Diurnal Lepidoptera of America north of Mexico, in which use was made of Hubner's Tentamen, a leaflet not accepted by the International Committee on Zoological Nomenclature. Unfortunately a number of the invalid names there adopted from the Tentamen are being used by some of our California lepidopterists. Another erroneous name for which we are indebted to Barnes and Benjamin is the use of Phalænidæ in place of Noctuidæ. Linnæus used Phalæna as a group name dividing it into a number of what would now be considered as genera, and for none of which did he use his name Phalæna. Lamarck in 1801 was the first to use the name Phalæna in the modern generic sense and he used it for a geometrid moth which thus becomes its type. As a family name it will thus displace the name Geometridæ, and in this sense it was used by Packard and other early entomologists. An error for which we are not indebted to Barnes and Benjamin is the use of Hemiptera in place of Heteroptera by those who split that order. Personally I consider the dividing of this order as illogical as would be the dividing of the order Lepidoptera into Rhopalocera and Heterocera, confining the term Lepidoptera to the diurnals. There is absolutely no justification for the division of either of these orders. Those in doubt on these points should take the time and trouble to look up the history of these names before adopting the change.—E. P. Van Duzee.

A NEW TRIBE OF CARABIDÆ (COLEOPTERA) FROM WESTERN UNITED STATES

BY P. J. DARLINGTON JR.

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The following is a very isolated new tribe of G. H. Horn's subfamily Carabinæ of the beetle family Carabidæ:

Gehringiini

Chief tribal characters: Mesosternal epimeron attaining middle coxa; front coxal cavities open behind; hind coxæ separated; front tibia broadly emarginate on inner side, variable spur distant from apex; sides of elytra broadly bent under body, without special internal plica or marginal interruption; palpi stout, last joint slender, almost subulate; antennæ moniliform, inserted under slight frontal costæ; mandible with seta in scrobe; single fixed seta over eye.

This tribe is founded upon the following genus:

Gehringia Darlington, gen. nov.

Size minute; general appearance like Bembidion; entire upper surface sparsely and inconspicuously pubescent. Epimeron of mesosternum narrowly but definitely reaching coxa; front coxal cavities open behind, prosternal process not prolonged behind coxæ; middle coxæ separated by about one-half their own width; hind coxæ separated by one-fifth or one-sixth width of body including elytra, posterior edge of metasternum reaching second abdominal segment medially; first ventral visible at sides but not between coxæ. Front tibia simply rounded at apex, broadly emarginate on inner side, variable spur distant from apex; tarsal claws simple; male front tarsi not dilated, but with inconspicuous sexual vestiture. Head rather short, bi-impressed between anterior edges of eyes, front not otherwise sulcate; eyes moderate, narrowly separated from mouth below, coarsely faceted, sparsely set with short pubescence; supraorbital fixed seta single, opposite posterior margin of eye; antennæ inserted under slight frontal costæ, basal joint only glabrous, first three joints subequal, about twice as long as wide, outer joints perfectly moniliform; clypeus subtruncate in front, with two setæ each side near margin; labrum moderate, subtruncate in front, with three setæ each side on front margin, the inner very short; mandibles short, arcuate, acute, with seta in scrobe (detectable only in some specimens); mentum deeply emarginate, toothed at middle, tooth irregularly blunted at apex, with two inconspicuous setæ at base; ligula narrow, parallel, bisetose at apex; paraglossæ wider than

ligula, of same length; whole labium (ligula + paraglossæ) nearly square, truncate at apex; labial palpi with penultimate joint stout, bisetose in front, apical joint slender, slightly shorter; maxillæ with inner lobe curved and acute at apex, spinulose on inner margin, outer lobe of equal length, basal joint stout, outer joint slender; maxillary palpi very short and stout, penultimate joint slightly serrate on inner side, apical slender, shorter, almost subulate. Prothorax cordate; pronotum with seta in posterior angle and in side margin one-third from apex on each side. Scutellum distinct. Elytra not margined at base; scutellar stria absent, sutural stria deep, striation otherwise obsolete; no special discal setæ; outer edge of elytron broadly bent under body, reaching outer end of hind coxa, the bend being inside the ordinary explanate margin which is therefore carried under the body except near humerus; no special internal plica or marginal interruption. Wings long but with anal area greatly reduced; venation of Carabid type but reduced; most of margin fringed with hairs.

The genotype is:

Gehringia olympica Darlington, sp. nov.

Figures 1-6

Form as shown in Fig. 1. Piceous black, antennæ, legs, and parts of under surface rufescent. Front impunctate, shining, but with a few short, inconspicuous hairs in addition to the supraorbital fixed setæ. Pronotum finely margined at sides, not margined at base; edge of base, and side margins posteriorly, more or less crenate; disk with rugose transverse impression across base between small depressions in posterior angles, median longitudinal impressed line very fine, no transverse impression anteriorly; surface of disk shining, impunctate, but finely and sparsely pubescent. Elytra not margined at base; explanate lateral margin very narrow, bent under body as described above; sutural stria entire, deep, impunctate; second and third striæ sometimes faintly, irregularly impressed for part of their length, sometimes completely obliterated, as are outer striæ; intervals 1 to 3 each with a single row of punctures bearing inconspicuous hairs; rows of similar punctures corresponding to outer intervals progressively less regular, the punctures very irregularly placed externally and apically; surface between puctures smooth, shining; epipleuræ impunctate, shining. Anterior tarsi of male not perceptibly dilated, first three joints with scanty sexual pubescence below. Length to apex of elytra ±1.6 -1.7 mm.

Holotype, female (on point), allotype, male (dissected, on slide), and 6 paratypes (♂ ♀ ♀ ♀ on points, original condition;

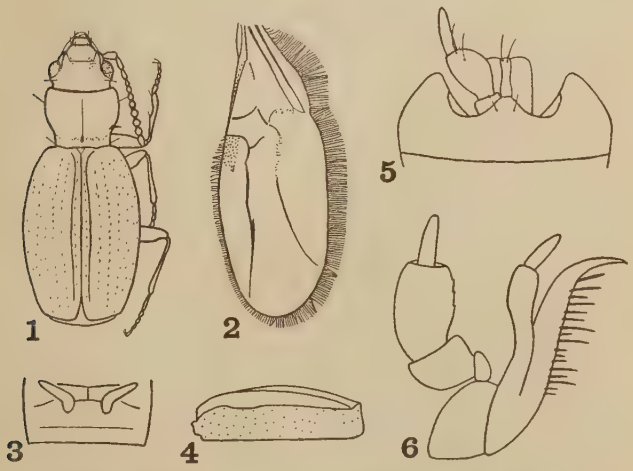
♂ on point, slightly dissected; ♀ entire on slide) from near Sol Duc Hot Springs, Olympic Mts., Washington State, Aug. 5, 1927, taken by the writer by throwing water over gravel bars in the river. Six paratypes (♂♂,4♀♀) from Glacier Park, Montana, June 30 and July 8, taken by Miss Edith Mank and lent to me by Mr. H. C. Fall. Type, allotype, three (♂♂♀) Olympic Mts. paratypes (including all dissections), and one (♀) Glacier Park paratype in the Museum of Comparative Zoölogy, type number 17,243. One Olympic Mts. paratype each in the collections of the California Academy of Sciences, H. C. Fall, and the writer. Five Glacier Park paratypes in the collection of H. C. Fall.

The genus Gehringia does not fit very naturally anywhere among previously described Carabidæ. It unquestionably falls in the subfamily Carabinæ (in the broad sense of G. H. Horn and of the Junk Catalogue)[1] on the structure of the mesosternum, and also on the incomplete closure of the anterior coxal cavities, a condition which is apparently unknown among Harpalinæ. In Horn's table of tribes (1881, 104) it falls between the Cychrini and the following tribes, fitting neither portion of the couplet. In Sloane's classification (1923, 242) it runs to the Carabidæ Apertæ and falls between the Nebriini and Notiophilini (couplet 25), fitting neither. The peculiar underlapping of the edges of the elytra in Gehringia is, so far as I know, unique among Carabidæ. Even aside from this, however, the genus is very strongly characterized. The separation of the posterior coxæ is not common, and the short, stout palpi, with the last joint contrastingly slender are unique at least among Carabinæ. If the ventral structure and other inconspicuous characters were overlooked, this insect might be considered a relative of the Bembidiini (subfamily Harpalinæ), for the general form and the almost subulate palpi are very Bembidion-like, but I can find nothing described in that tribe which at all fits Gehringia. At one time during my study of the insect I even doubted whether it belonged to the Carabidæ, but the division of the first ventral segment, the sutures of the posterior part of the metasternum, and the general character of the wing venation,

[1] Although the Carabinæ of Horn is not a natural or phylogenetic subfamily, its recognition is exceedingly convenient, and for that reason seems to me to be desirable.

as well as the general appearance, leave no doubt that it is a true Carabid. Since it does not seem to be very closely related to any previously described form, I am placing the tribe Gehringiini provisionally almost at the front of the Carabinæ, after Trachypachus and before the Cychrini in Leng's "Catalogue of Coleoptera of America North of Mexico".

The bending under of the sides of the elytra is presumably an adaptation for supporting the abdomen; if so, it serves the same function as the internal elytral plica of some other Carabidæ. I think there can be no question that the bending of the elytra is a natural character, not due to warping after death, for it is constant in the fourteen specimens I have examined, and there is no distortion of other parts of the body in most of the specimens. None of them is immature. The reduction of the venation of the wings is probably directly correlated with the small size of the insect, and is probably not in itself of much significance (*Cf.* Jeannel 1926, 329).



Gehringia olympica. 1. Entire insect. 2. Inner wing. 3. Posterior part of metasternum, hind coxæ, and first three ventral segments (semi-diagrammatic). 4. Elytron from below. 5. Mentum, labium, and one labial palpus. 6. One maxilla, with palpus. Figs. 1-4 from camera lucida outlines; 5-6, with use of ruled occular.

The name Gehringia has been adopted in honor of the late Dr. John George Gehring of Bethel, Maine, who was one of my earliest entomological correspondents and most stimulating friends, and for whom I was collecting "on shares" when I secured the types of the genus.

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Our Travelers Return

Dr. E. C. Van Dyke recently returned from a fifteen months' trip through Europe and northern Africa He attended the fifth International Entomological Congress at Paris and the centenary meetings of the Entomological Society of London but spent much of the time studying the collection of insects at the British Museum and those at Paris, Berlin, Vienna and other places. About two months were spent traveling and collecting in Egypt and Algeria. The results of his studies and his contacts with European entomologists will add greatly to the value of the Academy collection of insects.

Mr. Howard Hinton and Mr. Robert Usinger spent about two months collecting in Temascaltepec, Mexico, bringing back many interesting insects some of which will find their way into the collection of the California Academy of Sciences. Mr. E. Gorton Linsley took a trip east this summer visiting a number of the larger insect collections there, studying types and comparing some of his uncertain species of longhorn beetles.

In early August Mr. Templeton Crocker returned from a cruise among the Solomon Islands in his yacht The Zaca and brought back for the Academy a considerable collection of insects, which is especially welcome as we had little from those islands except a collection of moths made there in 1921 by Mr. J. A. Kusche. Mr. Crocker's material was largely taken by his secretary Mr. Maurice Willows, whose work in the Galapagos Islands last year added so much to our knowledge of the insect life of those interesting islands.—E. P. Van Duzee.

TWO NEW SPECIES OF SCARABÆIDÆ (COLEOPTERA)

BY EDWIN C. VAN DYKE
University of California, Berkeley, California

Aphodius linsleyi Van Dyke, n. sp.

Of moderate size, robust, nigropiceous, undersurface somewhat rufous, moderately shining and not pubescent above. Head without tubercles, occiput with a few coarse, umbilicate punctures and numerous fine punctures; clypeus rather closely, finely punctured and obscurely alutaceous; sides oblique, hardly arcuate, genæ prominent, anterior margin shallowly emarginate at middle and rounded each side of depression. Prothorax about a fifth broader than long, widest in front of middle, much narrowed behind; sides almost straight posteriorly, arcuate in front, hind angles evenly rounded; base arcuate, basal margin deep, complete and continuous with lateral margin, deeply, closely punctured; disk convex, coarsely irregularly, rather numerously umbilicately punctured and with very minute punctures scattered over the intervening smoother areas, a faint median canaliculation near base. Elytra elliptical, one fourth longer than broad, humeri rounded with a small tooth; disk convex, deeply striate, striæ moderately coarsely and closely punctured, intervals carinate, the first, third and fifth more prominent and very minutely punctured. Wings apparently absent. Beneath more or less coarsely, closely punctured in front, the abdomen shallowly punctured at sides. Posterior femora sparsely punctured; hind margin of posterior tibiæ fimbriate with short equal spinules; first segment of hind tarsi about equal to following three segments united. Length 5 mm., breadth 3 mm.

Holotype (No. 3739, Mus. Calif. Acad. Sci.), a unique, collected by Mr. Gorton Linsley at the base of Mt. St. Helena, Napa Co., Calif., March 22, 1930, and very kindly presented to me. It was taken from cow manure.

This most interesting species belongs in the *cadaverinus* group of *Aphodius*, a group which is quite restricted to and characteristic of the Pacific Coast of North America. Its very distinctive carinate elytra will readily separate it from all of its fellows. In the table[1] given by me, it should be placed between *cadaverinus* (Mann.) and *sparsus* Lec.

[1] Notes and descriptions of New Species of Scarabæidæ from western North America, by Edwin C. Van Dyke, Pan-Pac. Ent., IV (1928) pp. 152-153.

Polyphylla hirsuta Van Dyke, n. sp.

Medium sized and rather stocky, rufous with basal area of head and discal part of pronotum piceous; upper surface clothed with fulvous pile, long rather dense and sub-erect on the head, pronotum and scutellum, short and depressed in the clypeal sulcus and on the elytra; pile of elytra rather sparse though with a tendency to be denser where the usual vittæ are found, thus outlining vague and more or less interrupted vittæ, the same condition likewise existing with regard to the longer pronotal vestiture. Head very coarsely, closely and deeply punctured; clypeus deeply, transversely sulcate in front, its sides straight and parallel, frontal margin almost straight, and outer angles rounded; antennal club moderately large, about a third longer than basal part of antennæ. Prothorax with anterior margin rather evenly and deeply emarginate, the base broadly, shallowly lobed at middle and with margins irregularly subserrate, and the disk coarsely, deeply and rather regularly punctured, with median longitudinal groove narrow and shallow. Scutellum irregularly, rather coarsely punctured over entire area and entirely clothed with pile. Elytra irregularly punctured and rugose over entire area. Pygidium finely punctured and moderately, densely clothed with hair, Beneath densely clothed with long fulvous hair in front, the abdomen less densely clothed with shorter, more appressed hair at sides, quite smooth at middle. Anterior tibiæ bidentate in male. Length 20 mm., breadth 10 mm.

Holotype male (No. 3740, Mus. Calif. Acad. Sci.) and two paratype males collected on Mt. Washington, near Nogales, Ariz., alt. 6000 ft., July 20, 1919, by Mr. J. A. Kusche.

This reddish, hairy and non-scaled species with very indistinct vittæ should be easily recognized. It would perhaps come just before *diffracta* Casey in Fall's Key[2] but it is closely related to none of our previously described species.

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[2] A review of the genus Polyphylla, by H. C. Fall. Proc. Ent. Soc. Wash., VII (1928), pp. 34-35.

NOTES ON CARABIDÆ

BY MELVILLE H. HATCH

TRACHYPACHUS Mots. (*Trachypachys* and *Trachypachis* Lac.)

The American species have recently been reviewed by Van Dyke (Pan-Pac. Ent. I, 1925, p. 111-112). I am indebted to Dr. Walther Horn of the Deutsches Entomologisches Institut for the loan of a Transbaikalian example of *T. zetterstedti* Gyll, (*transversicollis* and *laticollis* Motsch.) which I rely upon to establish the cospecificity of this species with our *inermis* Mots. (*holmbergi* Mann., *oregonus* and *specularis* Csy.). Van Dyke (l.c.) is vague or misleading as regards the number of series of elytral punctures. *T. sleveni* VanD. has eleven series of which the fifth, seventh, and ninth terminate before the middle and the second and sixth at about the apical fourth. *T. zetterstedti* Gyll. has from three to nine rows, the majority of specimens in my series having either four or seven. In counting these rows of punctures I disregard the three series of widely spaced "dorsal" punctures. *T. gibbsii* Lec. has about twelve rows.

CARABUS (s. str.) GRANULATUS L.

Since 1924 we have been taking occasional but repeated specimens of this Palæarctic species in Seattle, Washington to the east and northeast of the University campus. It has been recorded previously from North America only from New Brunswick (Harrington, Can. Ent. XXIV, 1891, p. 112). In Crotch's key (Trans. Am. Ent. Soc. V, 1876, p. 248) it runs to *limbatus* Say and *vinctus* Weber of the subgenus *Lichnocarabus*. From these it may be distinguished by possessing only two entire and three interrupted elytral costæ.

CARABUS (ARCHICARABUS) NEMORALIS Mull.

This Palaearctic species has been known in Seattle, according to Professor Trevor Kincaid, since about 1909 and is now our commonest large carabid. It has a wide distribution in North America. Leng (Cat. Col. Am. n. of Mex. 1920, p. 45) records it from New Brunswick, New Jersey, and New York. I have specimens in my collection from Ontario (Toronto, 1921), Massachusetts (Boston, 1921), and Michigan (Ann Arbor, 1924). Gibson (44th Ann. Rep. Ent. Soc. Ont. for 1913, Ent. Rec., 1914,

p. 8) records it from Quebec (Montreal). Van Dyke (Pan-Pac. Ent. I, 1924, p. 78) records it from California (San Francisco, 1919). It belongs to the same subgenus as *tædatus* Fab., from which it is most readily distinguished by its more robust form and the violaceous tinge of the base of the pronotum.

Monillipatrobus punctatus Hatch, gen. et sp. nov.

Monillipatrobus gen. nov. A new genus of Patrobini. Metaëpimeron not attaining mesocoxa. Head with two setiferous punctures above eye, feebly constricted behind eyes, basal sulcus feeble but evident. Mandible with a single setiferous puncture towards distal portion of scrobe. Antenna less than half the length of the body, about as long as head and pronotum, with the segments from the distal portion of the basal segment more or less densely setiferous, submonilliform, the segments from the base to the apex respectively 1-2, 4-5, 1-2, 5-7, 5-6, 5-6, 5-6, 5-6, 5-7, 5-7, 5-12 as wide as long. Abdominal segments entirely corneous. Mesoepimeron broad as compared with *Diplous* (*Platidius*). Maxillary palp with last segment truncate, longer than penultimate; galea with two segments subequal. Integuments densely punctate. Pronotum with basal impressions foveiform, margin not incised in front of hind angles. Elytra incompletely margined at base. Metacoxæ contiguous. Type: *M. punctatus* sp. nov.

Distinguished from *Patrobus*, *Diplous*, and *Patroboidea* Van-Dyke (Pan-Pac. Ent. II, 1925, p. 67) by its punctate integuments and submonilliform antennæ, from *Patroboidea* by its truncate, not acute, terminal palpal segments. It has the flattened pronotum of *Diplous* and the deep basal impressions of *Patrobus*, in which respects it resembles *Patroboidea*.

Monillipatrobus punctatus sp. nov. Length 5.6-6.4 mm. Black, legs and antennæ rufo-piceous. Above and below coarsely moderately densely punctate. Head shining, constricted behind, the constriction more densely punctate, the neck behind the groove impunctate. Pronotum feebly alutaceous, over four-fifths as long as wide, broadest about apical third, base about six-sevenths as wide as apex; side margin with three long setæ, one at hind angle and two in front of middle; side margins narrow, arcuate in front, sinuate behind, hind angles obtuse, anterior angles rounded; basal impressions deep, foveiform, connected by a shallow transverse impression that is interrupted by a pair of longitudinal carinæ, one on either side of the median line; median line extending almost from base seven-eighths of way to apex, somewhat wider and more impressed behind and separated from transverse impression by a distinct carina on either side; disc flattened; anterior transverse

impression vague, scarcely more punctate than rest of surface. Elytra widest just behind middle, more strongly alutaceous, octo-impresso-crenulato-punctato-striate, the striæ confused and obsolete towards extreme apex, the intervals punctate, the third interval with two setiferous punctures at apical 15% and basal fourth, the marginal stria with six long and numerous shorter setæ, the long setæ divided into a subhumeral and a subapical group. Venter alutaceous, punctate. Male with, and female without, the basal three protarsal segments dilated and spongy pubescent beneath.

Type, male (Seattle, Wash. IV-25-1930) and allotype, female Seattle, Wash.) in Hatch collection. Two paratypes (Seattle, Wash.) in O. B. Johnson collection.

TRECHUS (s. str.) OBTUSUS Er.

This Palaearctic species, not previously recorded from North America, was first taken by Professor Kincaid in Seattle in 1927. I take it in abundance in the grass right along the side of my house. It may be distinguished from our native species by the absence of basal impressions on the pronotum.

PTEROSTICHUS JOHNSONI Ulke.

Described (Ulke, Ent. Amer. V, 1889, p. 50; Piper, Proc. Ent. Soc. Wash. XIII, 1911, p. 62-64) from Mehama, Oregon, from wet moss on boulders and in gravel in the spray of water falls. Piper (l.c.) took another specimen at Horsetail Falls, Oregon. I have an extensive series from Green River Gorge (King Co.), Washington, taken in the gravel of talus slopes constantly wetted by the spray of falls coming over the rim of the gorge as well as under rocks by streams fed by the same falls. This species is so unlike any of the other American species of the genus that I propose for it a new subgenus, named in honor of its discoverer.

Subgenus **Orsonjohnsonus** Hatch, nov.

Metaëpisternum shorter than wide; elytra with from three to six dorsal punctures on both third and fifth intervals, the intervals interrupted behind each puncture; side margin of pronotum with a single seta; distal tarsal segment without hairs beneath. Type: *Pterostichus johnsoni* Ulke.

PTEROSTICHUS (Omaseus) VULGARIS L.

This Palaearctic species, not previously recorded from North

America, was first taken by Professor Kincaid in Seattle in 1927, where it is now abundant. Additional specimens have been seen from Puyallup and Tacoma (1930) and Mt. Vernon, Green River Gorge, and Robe, Washington, (1931), as well as Marylhurst near Portland, Oregon (1931). The species is very common in Europe, where there is a single record (Horner, Entomologist XVII, 1884, p. 238-239 [*melanarius Ill.*]) of it eating strawberry fruit. Such a habit must be very unusual, and we have no evidence of any such in Washington. *Omaseus* may be distinguished from *Melanius* (*Pseudomaseus* Chaud., *Omaseus* Lec., Casey, and Leng nec Steph.), the American subgenus to which it is apparently most closely related, by the presence of one or two setæ on either margin of the ventral surface of the last tarsal segment.

Platynus (Paragonum) belleri Hatch, sp. nov.

Above shining æneous or virido-æneous. Head impunctate; antennæ black, pubescent from apical half of third segment; head through eyes wider than apex of pronotum. Pronotum nearly three-fifths as long as wide; side arcuate, feebly oblique behind; margin reflexed, narrowly so in front, more widely so behind; the foveæ of hind angles large, their outer edge formed by the reflexed margin; pronotum smooth, impunctate, except for the side margin and the basal foveæ which are densely rugose; mid-dorsal impressed line attaining neither base nor apex, crossed by an evident impressed line toward apex. Elytra very finely microreticulate with evident humeri, very feebly wider behind middle; the striæ impressed, finely punctate; the first (sutural), third, fifth, and seventh interstriæ more or less densely set with coarse seta-bearing punctures, the second interstria with from four or five to a dozen similar punctures, the fourth interstria rarely with one or two punctures. Venter and legs viridescent, shining, finely alutaceous, impunctate; second to fifth visible abdominal sternites with single seta-bearing punctures on either side of the middle towards the hind margin. Protarsal segments feebly dilated and squamose beneath (♂) or unmodified and simply setose beneath (♀). Length 6.5 mm.

Type male, allotype female and 135 paratypes (in collection of author): Chase Lake, Snohomish County, Washington, running on red sphagnum mat beset with *Drosera* within about two meters of the edge of the mat. Type and allotype dated June 1928; paratypes dated June and August 1928, May and June 1930, April 1931.

Named in honor of Mr. Jack Beller, who first brought the species to my attention in 1928. Though he searched diligently in similar situations in other local bogs Mr. Beller was unable to detect this interesting species anywhere but in the one bog, which is no more than an acre or so in extent. The color of the beetles matches so closely with that of the sphagnum mat that they are difficult to detect until one has had his attention called to them. *P. belleri* is separated from all other Nearctic species of *Platynus* with which I am acquainted, as well as from other species of the subgenus *Paragonum*, by the coarse punctation of the alternate elytral interstriæ.

In the light of the present species the four subgenera of *Platynus* Bon. which Casey (Mem. Col. IX, 1920, p. 5, 99) united under the term "*Agonum* Bon." may be more adequately defined as follows:

A¹. Pronotal fovea obsolete, the pronotum towards the posterior angles evenly concave; form broader; Cal.....*Leucagonum* Csy.

A². Pronotal fovea evident; form narrower.

B¹. Pronotal fovea small, distant from margin of pronotum

C¹. Dorsum brilliant metallic.....*Agonum* Bon.

C . Dorsum black, rarely feebly æneous.....*Melanagonum* Csy.

B . Pronotal fovea large, concave, formed externally by the more widely reflexed side margin.....*Paragonum* Csy.

PLATYNUS (OXYPSELAPHUS) PUSILLUS Lec.

This species is distinct from the Palæarctic *obscurus* Herbst. The two species may be distinguished as follows:

A¹. Basal impressions and base of pronotum coarsely densely punctate; elytral striæ crenately punctate; elytral intervals impunctate; length 5-6 mm.; Europe, (?) Siberia. (*oblongus* Schaum, *tæniatus* Payk., *pallidulus* Chd.).....*obscurus* Hbst.

A². Basal impressions of pronotum nearly impunctate; base of pronotum coarsely sparsely punctate; inner elytral striæ impunctate, outer ones finely punctate; elytral intervals with setiferous punctulæ; length 6-7 mm.; Washington and Canada to New York and Illinois. (*Stomis americanus* Lec. nec Lap.; *oblongus* Hamilton Can. Ent., XX, 1888, p. 61, nec Schaum; *obscurus* Hamilton, Trans. Am. Ent. Soc., XXI, 1894, p. 354, nec Hbst.).....*pusillus* Lec.

ON A NEW EYELESS SPIDER OF THE FAMILY LINYPHIIDÆ FROM POTTER CREEK CAVE, CALIFORNIA

BY RALPH V. CHAMBERLIN

The spiders reported upon in the present paper were collected in Potter Creek Cave by Mr. W. J. Sinclair in 1903 and were transmitted to me for study by Prof. C. A. Kofoid. One of the specimens represents a widespread species of *Xysticus*. This is not normally a cavernicolous form and its occurrence in Potter Creek Cave was probably casual, spiders of various types often being found in caves near the entrance. The other specimens of the collection, however, represent a species which is apparently a wholly cave-dwelling form as indicated especially by the complete absence of eyes, in which respect it suggests another member of the same family, *Anthrobia mammouthia*, of the Mammoth Cave. The blind species of the present collection represents a new genus closely allied to *Linyphia* in habitus and general structure. Several cave-inhabiting species of *Linyphia* are known in which the eyes show various stages in reduction, the anterior median eyes being the first to show the effect of life in the dark. Members of the Linyphiidæ, many of which normally seek shade and moisture, are especially likely to be represented in any permanent spider fauna occurring in caves remote from the entrances.

LINYPHIIDÆ

Tuganobia Chamberlin, gen. nov.

Cephalothorax broad and depressed, the pars cephalica but little elevated; eyes not developed; clypeus broad, slanting forward from above; upper margin of furrow of cheliceræ with three well-developed teeth, the lower unarmed; palpi of female with well-developed claws which are pectinate over middle portion as in claws of legs; palpal organ of male similar to the ordinary type shown by *Linyphia*; embolus long and slender, curved; legs long and slender, setose but lacking true spines; paired claws with a series of teeth over middle region,

Genotype, *T. potteria, sp. nov.*

1
5
2
3
4

Tuganobia potteria Chamberlin, sp. nov.

General color of body and legs throughout pale yellow, with carapace, sternum and coxæ of legs more or less dusky; legs and abdomen wholly unmarked excepting that the dorsal vessel may show through the abdomen as a median longitudinal stripe.

Cephalic eminence dorsally rounded, low, set off by a depression separating it from clypeus. Clypeus slanting forwards to base of cheliceræ. Cephalothorax widely truncate behind, the pars thoracica broad and laterally rounded, depressed (fig. 1). Two upper teeth of superior margin of cheliceræ long and sub-equal, the lowermost smaller.

Legs long, setose but unspined. Paired claws typically with five teeth which decrease in length proximad as shown in fig. 2.

Abdomen high anteriorly, pointed behind, with spinnerets carried at end in caudoventral position, Linyphia-like.

Epigynum of female a well-chitinized plate without distinct processes (fig. 3).

Palpal organ of male large and freely exposed, the embolus forming a single coil curving back widely over paracymbium and about base and opposite side (fig. 4).

Length, 3.5 mm.; femur of first legs, 3.5 mm., that of fourth legs longer; tib. with patella IV, 4 mm.

One male (holotype) and ten females. Types in author's collection.

THOMISIIDÆ

XYSTICUS FORMOSUS Banks

While best known from the northeastern part of the United States, this species has been taken previously in California as well as in Arizona. Mr. Sinclair secured a single male of which the palpus is shown in lateral view in fig. 5. In coloration, eye relations, and spining of legs, the specimen is typical.

Fig. 1. *Tuganobia potteria*, sp. nov. Carapace of male holotype in outline from above. x 42. Fig. 2. Same. A paired claw of first leg of male. x 400. Fig. 3. Same. Epigynum of female paratype, ventral view. x 120. Fig. 4. Same. Left palpus of male holotype, in subventral view. x 60. Fig. 5. *Xysticus formosus* Banks. Right palpus of male, ectal view. x 73.

NEOHERMES INFUSCATUS, A NEW SIALID FROM CALIFORNIA

BY A. N. CAUDELL

Bureau of Entomology

United States Department of Agriculture

The species here described was recently received for determination from Charles F. Harbison of the University of California, at Berkeley, California. It is at a glance distinguishable from other Nearctic species of the genus by the almost uniformly black color of the wings. Recognizing it as belonging to the genus *Neohermes*, the author thought it might be the *N. californicus* of Walker. But being in doubt about this he sent one of the specimens to Mr. Nathan Banks, who pronounced it a new species undoubtedly distinct from *californicus*. It is described as follows:

Neohermes infuscatus Caudell, new species

Venation and other diagnostic structural characters as given for the genus *Neohermes* in Banks' key to the genera of Corydalinæ.* The general color is deep brownish black to dead black, the wings uniformly colored, without bands or noticeable maculation, except that brownish black individuals show some small obscure lighter areas, especially on the fore wings and the apical portion of the anterior field of the hind wings. Abdomen beneath, except apically, dull brick-red in color, above similarly colored but less distinctly so; clypeus, labrum, and outer surfaces of the mandibles light or reddish colored and the base of the head more or less obscurely tinged with reddish; legs and antennæ uniformly black; ocelli distinct, light yellowish in color, and forming a triangle but little broader than high.

* Proc. Ent. Soc. Wash., vol. X, pp. 28-29 (1908).

The measurements of the female are: Length of body from front of head to tip of abdomen, 20 mm.; antennæ, about 16 mm.; fore wings, 33 or 34 mm.; hind wings 3 or 4 mm. shorter than the fore wings; width of wing, both fore and hind pair, a little more than 10 mm.

The male, which lacks the abdomen, is somewhat smaller than the female, the length of the anterior wings being 30 mm.

Described from one male, without antennæ or abdomen, and three females taken by Mr. Arthur S. Harrison, in broad daylight flying about blooming California buckeye trees growing in

canyons near Vacaville, Solano County, California, on June 1, 1932.

Holotype, female, and allotype, male, in United States National Museum, Catalog No. 44900; two paratypes, one in Museum of Comparative Zoology and one returned to the University of California.

There is scarcely any noticeable variation in these specimens except that the allotype and one paratype are more densely and uniformly black in the coloration of the wings.

ADDITIONS TO THE COCCINELLIDAE OF ALASKA

BY F. T. SCOTT
Visalia, California

Through the kindness of Mr. R. E. Barrett, of Saticoy, the writer has recently obtained a number of species of Coccinellidæ collected by Mr. Barrett, in the summer of 1928, in Alaska.

Mr. H. C. Fall, (Pan-Pacific Entomologist, July, 1924), lists a number of species. The following are in addition to that list:

Coccinella tricuspis Kby. Ft. Yukon, 6-23-1928.

Hippodamia 5-signata Kby. Eagle, 6-18-1928.

Adalia frigida Schn. Circle, 6-21-1928.

Adonia amœna Fald. One specimen from Eagle, Alaska, 6-18-1928, one from Kirkman Creek, Y. T., 6-13-1928. These specimens of Adonia amœna were determined by Dr. Th. Dobzhansky, of the California Institute of Technology, an authority on Siberian Coleoptera. I do not believe that this species has ever been reported from North America before.

Ceratomegilla ulkei, Cr., 3 specimens. While these were collected in Yukon Territory before Mr. Barrett reached Alaska, I believe they are deserving of a note here. This is a very rare species unknown to both Casey and Leng. Two of the specimens, both females, agree perfectly with the description, except that the third antennal segment is not dilated. The third specimen, a male, is atypical in ornamentation, but has the dilated third segment. These specimens were sent to Mr. H. C. Fall who kindly offered to compare them with the Crotch type at Cambridge, but this species was found to be represented there only by a drawing of an elytron. It would appear, from this, that the dilated third antennal segment is a male character, and not a good generic character.

A NEW SPECIES OF GASTRODES FROM CALIFORNIA
(Lygaeidæ-Hemiptera)

BY R. L. USINGER
Oakland, California

Gastrodes conicola Usinger, n. sp.

Form more elongate with the sides more nearly parallel than in other species of this genus. Larger, more infuscated, the rostrum very long, attaining at least the middle of the first abdominal segment. Antennæ black, second segment distinctly longer than third. Front femora greatly incrassate, with the preapical tooth very prominent, sharply bent at the base and directed apically in the male. Length 7.3 mm. to 8.5 mm., width 2.9 mm. to 3.2 mm.

Head black, longer than width across the eyes, (length and width subequal in *Gastrodes pacificus* (Prov.); distinctly and rather coarsely punctate medianly on the vertex and extending on either side before the eyes and covering the juga thus leaving an impunctate, slightly granulous area around and anterior to each ocellus and extending posteriorly to join at the base of the head; tylus likewise granulous, reaching middle of first antennal segment. Pronotum three times as broad at base as at apex; anterior lobe black, irregularly punctate; basal lobe ferrugineous, more regularly punctate, impunctate on the somewhat swollen humeral angles and on the lamellar lateral expansions between the lobes; lateral margins rectilinear or slightly concavely sinuate between the lobes (rectilinear to slightly convexly arcuate in *pacificus* and distinctly concavely sinuate in the specimens of *ferrugineus* (Linn.) examined), evenly rounded at the apex. Scutellum black, rather sparsely punctate with faint indications of carinæ from the basal angles and often from the apical angle directed toward the center which is depressed. Hemelytra ferrugineous, becoming slightly infuscated on the apical half of the corium and distinctly so on the membrane; clavus and corium distinctly punctate, the punctures more or less in lines; lateral expansion of embolium forming an impunctate lamella. Connexivum often exposed for a short distance at the joining of the corium and membrane, light ferrugineous. Antennæ entirely black or sometimes with the basal half of the second segment dark fuscous; first segment robust, a little less than one-half as long as second; second segment more slender, in great part cylindrical but distinctly clavate on its apical one-sixth; third segment cylindrical or gradually enlarging toward the apex, distinctly shorter, 6::7, than the second (second and third subequal or with second very little longer than third in *pacificus* and *ferrugineus*); fourth

subequal to third, fusiform. Rostrum black to fusco-piceous, attaining at least the anterior margin of second abdominal segment and often extending even onto the third; basal segment attaining base of head; second almost twice as long as first; third shorter than second; fourth shorter than first. Under side of head and thorax piceous except for ferrugineous lateral expansions of pronotum. Venter ferrugineous to fusco-ferrugineous. Legs fusco-piceous to piceous, the tarsi lighter, almost testaceous. Front femora greatly incrassate, especially in the males; preapical tooth stout, sharply bent, and directed apically in the male, shorter and directed at right angles or slightly obliquely in the female; a distinct row of teeth beyond, and a less distinct row before, the preapical tooth. Front tibiæ strongly curved, especially in the male.

Holotype, male, No. 3743, and allotype, female, No. 3744, Calif. Academy of Sciences, beaten from newly opened, mature cones of *Pinus sabiniana* Dougl. at Russellmann Park on the east slope of Mt. Diablo near Clayton, Contra Costa Co., Calif., on April 15, 1933, by Mr. E. G. Linsley and the author. Paratypes, thirty-one, same data as the type, and twenty others collected at the same locality on April 22, 1933, are deposited in the collection of the Calif. Academy of Sciences, U. S. National Museum, H. G. Barber, and the author.

Two members of this genus, *Gastrodes abietis* (Linn.) and *ferrugineus* (Linn.), have been reported from coniferous trees in Europe. The new species herein described was found very abundantly in mature cones in which the seeds were just being shed and in which there was a great deal of resin or pitch. The occurence of many nymphs of various stages indicates that the species was breeding under these conditions. No specimens had ever been found during previous years of collecting nor, upon diligent search, were any specimens later found to occur in the foliage or in old cones of previous seasons.

The Moths of South Africa

Volume I of this important work has recently been published by the University of Pretoria. It is by A. J. T. Janse and covers the Geometridæ and the small family Sematuridæ (one species). It forms a neatly printed volume of 376 pages and 15 plates, the publication of which was greatly helped by a grant of £400 from the Carnegie Corporation. How much such a grant would help toward the completion of Professor Forbes' work on the moths of the eastern United States!—E. P. Van Duzee.

REGENERATION OF THE CERCI IN *FORFICULA AURICULARIA* L.

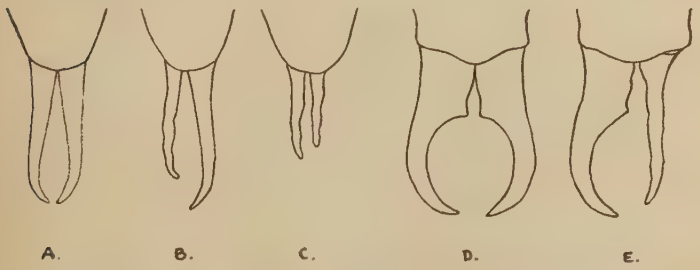
BY R. W. PRENTISS

The discovery of regenerated cerci on the European earwig, *Forficula auricularia* L. was made in a peculiar manner.

While the writer was working in the Earwig Parasite Laboratory in Portland, Oregon, during the summer of 1931, large numbers of earwigs were handled each day during the routine of "hand parasitizing" them with larvæ of the Tachinid fly, *Digonichæta setipennis* Fall.

The "hand parasitizing" procedure used was simple. It consisted of picking up slightly chloroformed earwigs by the cerci with small forceps in such a manner that the earwig might be brought in contact with the parasite *Digonichæta* larvæ contained in small glass tubes. A parasite would almost immediately attach itself to the earwig, which was then removed to a safe container. During this process one or more cerci would often break off, particularly in the case of the last nymphal instar of the earwig when the cerci are more slender and easily broken.

In order that none of the costly parasites be wasted on earwigs which might die as a result of the wound left by the broken cerci, a few of these injured earwigs were kept to see how long they would live. It was found that not only did they all live but that the last instar nymphs during their change to adult grew new cerci to replace the old.



A. Normal female cerci. B. Left cercus of female regenerated. C. Both cerci regenerated. D. Normal male cerci. E. Right cercus of male regenerated.

This was so interesting that a series of experiments was conducted with numbers of the nymphs from which one or both cerci had been removed. Legs and antennæ were broken from other nymphs in order to determine whether they too, might not be regenerated. As previously observed, the nymphs on changing to adults developed new cerci. Legs and antennæ did not grow back. Adults failed to grow new cerci, although two experiments were made to test this point.

The regenerated cerci are not normal but are stunted and malformed. The accompanying drawing compares the normal cerci of male and female earwigs with the regenerated cerci. It will be noticed that the new cerci are much like those of the adult female in that they are fairly straight. This may have been partly the reason for the conclusion reached by Morgan in an article in the Proceedings of the Indiana Academy of Science, Vol. XXXVI, 1926 (1927), pp. 331-333. He believed that these forms which he accidentally discovered, were gynandromorphs such as have been reported from other insect orders.

This conclusion, in view of the above observations and the fact that the regenerated cerci bear little resemblance to the normal female cerci, is probably wrongly drawn.

The writer can make no definite explanation for this interesting growth on the part of nymphal earwigs but suggests that possibly the cerci develop entirely from the chitinous covering which is thrown off during each moult, and therefore grow from the newly developing epidermis. Such a conclusion seems to be borne out by the fact that adults are unable to regenerate the cerci.

ABSTRACT

It has been found that regeneration of the cerci of the European earwig, *Forficula auricularia* L. is not rare. The resulting condition was formerly thought to be gynandromorphic by at least one author.

A NEW LONGICORN BEETLE FROM CENTRAL AMERICA

(Coleoptera, Cerambycidæ)

BY E. GORTON LINSLEY

Oakland, Calif.

The genus *Phrynidius* is typically Central American. Of the four previously described species, one is from Mexico and the three remaining are from Guatemala. These peculiar little beetles, unlike most longicorns, are usually found at high altitudes under rocks and stones. The following species agrees in all essentials with the other known species:

Phrynidius armatus Linsley, new species

Elongate, suboval, piceous; vestiture squamose, fuscous. Head about as broad as long; eyes narrow, deeply emarginate, coarsely granulated; antennal tubercles short, verticle, contiguous at base, separated by a narrow groove apically; antennæ three-fourths as long as body, sparsely clothed with short, curved, scale-like hairs in addition to the darker scales; scape incurved, one-third longer than third segment, the latter one-third longer than the fourth, remaining segments distinctly shorter, subequal, with exception of the eleventh which is longer than the tenth. Prothorax longer than broad, covered with small irregular tubercles; disc very convex, with larger unequal tubercles; punctation coarse, sparse. Elytra oval, not quite twice as long as prothorax, less than a third longer than broad; elytral tubercles arranged in two poorly defined longitudinal rows, the inner of which extends from base to apex and the outer from base to apical third with an interruption at the middle; larger tubercles interspersed with smaller ones; punctation coarse, somewhat obscured by scales. Body beneath finely punctured, densely clothed with fuscous scales and a few longer, pale, scale-like hairs. Legs sparsely, finely, punctured; tibiæ at apex with a fringe of equal yellow spines, tarsi clothed beneath with dense yellow hairs. Length 9 mm., breadth 4 mm.

Holotype, male, (No. 3741, Calif. Acad. Sciences), allotype, female, (No. 3742, Mus. Calif. Acad. Sciences) and several paratypes, collected at Santa Ilena, Chimaltenango Province, Guatemala, elevation 9800 ft., on July 31, 1926, by Mr. Joseph R. Slevin. Additional paratypes, Chicavac, Chimaltenango Province Guatemala, elevation 8600 ft., August 1926, also collected by Mr. Slevin. One pair of paratypes is deposited in the collection of the writer, the remainder are in the collection of the California Academy of Sciences in San Francisco. The writer is

indebted to Mr. E. P. Van Duzee of the latter institution for the opportunity of studying this interesting species.

In the above series, the relative proportion of the various segments of the antennæ is very constant, confirming the validity of this character for use in the separation of species. In *Phrynidius echinus* and *P. singularis*, the third antennal segment is distinctly longer than the scape. In *P. armatus*, *P. asper*, and *P. inæqualis*, the third segment of the antennæ is shorter than the scape. From the latter species, *P. armatus* differs in having the antennæ in both sexes three-fourths as long as the body, and from *P. asper* it differs in having the third segment of the antennæ one-fourth longer than the fourth segment. *P. asper* is stouter and more oval than either *P. armatus* or *P. inæqualis*.

A Note on Cosmotoma sertifer Serv.

In 1835, Serville described *Pogonocherus sertifer* from Brazil. Later writers placed the species in the genus *Cosmotoma* where it properly belongs. However, in the Coleopterorum Catalogus, pars. 74, 1923, Chr. Aurivillius cites it twice: on page 334 as *Pogonocherus setifer* and on page 419 as *Cosmotoma sertifer*. Plavilstshikov, in his additions and corrections to the Coleopterorum Catalogus pars 73 and 74 (Encyc. Ent. B. I. Col. 1927, p. 59) proposes the new name *Pogonocherus brasiliensis* for *P. setifer* which had already been used for a European species by Müller (Zool. Danm. Prodr. 1776, p. 92). Since Serville's original spelling was *sertifer* not *setifer*, Plavilstshikov's new name is unnecessary. The corrected synonymy of the species is as follows:

Cosmotoma sertifer Serv.

Pogonocherus sertifer Serv. Ann. Soc. Ent. Fr., IV, p. 59, 1835.

Cosmotoma viridana Lac. Gen. Col. IX, p. 781, nota 1, t.108, f.4, 1872.

Cosmotoma sertifer Aurivillius, Col. Cat., pars 74, p. 419, 1923.

Pogonocherus setifer Aurivillius (l.c. p. 334) *nec.* Müller 1776.

Pogonocherus braziliensis Plavilstshikov, Encyc. Ent. B. I. Col. p. 59, 1927.

—E. Gorton Linsley.

SOME NEW WESTERN LEAFHOPPERS OF THE FULGORID FAMILY ACHILIDÆ

BY E. D. BALL

University, Tucson, Arizona

This interesting family of moth-like insects feeds, as far as known, in the nymphal stages at least, on fungi growing on decaying wood. One would naturally expect to find a group with such food habits largely confined to the forest regions of the humid East; instead they are much more numerous in species and diverse in form in the extreme Western and Southwestern regions. It is true that they are largely confined to the mountains of this region but a considerable number come from the chaparral or elfin forest type of cover of these mountains.

Epiptera shoshone Ball, n. sp.*

Form of *henshawi* but smaller and with shorter elytra; front dark brown and cream, mesonotum dark brown, elytra silver. Length 8 mm., width across folded elytra 4 mm. Vertex about quadrangular in the female, a little longer in the male, the apex slightly rounding; elytra resembling *woodworthi* in shape, even broader and shorter, the stigmal area without the two transverse veins of *henshawi* and the anal cell with two transverse veins instead of one as in that species.

Color, silvery iridescent, the vertex slightly orange with a dark border; pronotum griseus; mesonotum dark brown, almost black with three faint spots in a triangle at the apex; elytra silvery with a pair of dark spots on disc on either side, a longer one on the stigma and some irregular ones at apex; front rich creamy, the basal third dark brown or black, the band running back on the pleural pieces; clypeus and below smoky brown.

Holotype ♀ and allotype ♂ Shoshone Nat. Forest, Wyo., Aug. 15, 1927 (H. H. Knight). The short broad silvery elytra renders this a strikingly distinct species.

Uniptera Ball, n. gen.

Resembling *Epiptera* in size and form but with a head more nearly like a *Catonia* of the *producta* group but less elongate. Strikingly distinct from these genera in the extremely ampliated costal area which is twice as wide across the middle of clavus as it is at the stigma.

* All types in the collection of the author.

Head small and inconspicuous, the eyes much flattened against the side of head as in *Epiptera pallida*. Vertex triangular, the lateral carinæ slightly rounding to the apex, the base deeply angularly excavated so that its median length scarcely equals the basal width; median carina broad and tumidly elevated posteriorly, forming a fovea on either side. Front extremely long and narrow only slightly widening towards the truncate apex, two and one-half times as long as its apical width, the front and clypeus elevated from face. In profile very convexly rounding with a very obtuse angle with the vertex above instead of flat with an acute angle as in *Epiptera*. Pronotum very small and narrow, not quite twice the width of the eyes and less than half as wide as the distance across the closed elytra; very short scarcely more than a collar except for the tumid, triangular central tablet which extends into the excavated head. Elytra very broad in front, roundingly narrowing behind. Venation simple, resembling *Epiptera*, the stigma set off by two oblique nervures.

Type of the genus *Uniptera ampliata* n. sp.

Uniptera ampliata Ball, n. sp.

Superficially resembling a small pale *Flatoides punctata* but without the transverse veins along costa. Still more closely resembling *Œcleus snowi* but with a widely different head and elytra overlapping posteriorly. Broad and short with a narrow head. pale creamy with three black points in a transverse line just before the forks of the primary nervures on each elytron. Length ♂ 8 mm., width 3.5 mm.

Structure of the genus; pronotum almost straight along the posterior margin, the lateral carinæ following the margin of the triangular projection. Mesonotum extremely short and broad, the lateral carinæ distinct, the median one obscure. Costal area of elytra occupying over one-third the breadth at the widest part opposite the rows of dots, then rapidly roundingly narrowing in front and slowly and regularly narrowing posteriorly to the broad stigma.

Color: Vertex and face creamy tinged with orange especially around the eyes; rest of dorsum pale creamy the nervures concolorous, a black spot outside the claval suture just in front of the fork of the cubitus, a second spot outside the medius and just before the subcosta-radius fork, a third equidistant spot in the same line in the costal area. Below pale, the venter smoky; underwings slightly smoky.

Holotype, male (labeled) Pasadena, Calif. Taken by the author from an *Arctostaphylos* on the lower portion of the trail

up Mt. Wilson, June 21, 1909. This is such a strikingly distinct and interesting form that it warrants description from a single sex.

Catonia fumida Ball, n. sp.

Resembling *maculifrons* and *lineatocollis* but longer, narrower, and less maculate. Dark smoky with light carinæ and nervures in sharp contrast. Length 5 mm.

Vertex about as in *maculifrons* slightly longer than wide, narrowing apically, meeting the front in a definite carinate angle, front proportionally much narrower than in *maculifrons*. Elytra proportionally much longer and narrower, definitely narrow and parallel-margined in repose. Male abdomen with a triangular apical projection as long as its basal width and one-third the length of the ear-like plates.

Color, almost uniform dark smoky above with the carinæ, the posterior margin of pronotum, a pair of stripes between the carinæ on mesonotum and the nervures white, in sharp contrast. Face and below creamy or old ivory; a broad apical and three narrow basal bands on the front widely separated into spots by the elevated median carinæ, black.

Holotype, female, allotype, male, and two pairs of paratypes. Huachuca Mts., Aug. 2, 1931, a female Sabino Canyon, July 14, 1932, and a male (labeled) Tucson, Sept. 1, 1929. All taken in the mountains of southern Arizona by the author. From *maculifrons* this species may be readily separated by the long uniform colored elytra, the narrow face and the fact that the upper bars on the front in that species tend to coalesce while in *fumida* they are reduced to small distinct spots. The long tapering apical projection in the male will separate it from both *lineatocollis* and *maculifrons* where this projection is broader than long and truncate.

Catonia arbutina Ball, n. sp.

Resembling *nava* in size and form, broader than *bicinctura*, much darker than either. Fuscus brown with white maculations and cross nervures. Length of ♀ 5 mm.

Vertex slightly more acutely carinate than in *nava* with correspondingly larger lateral foveæ. All carinæ of dorsum and the claval veins much elevated, acute. Elytra with the venation of the pattern of *nava*, the fork of the subcosta widening apically

and obliquely truncate. Male abdomen ending in a long bifurcate process that is shorter and broader than in *nava* and the plates are not as long or as strongly oblique.

Color, dark smoky brown, the lateral portions of pronotum white with four black spots, the nervures interrupted with white, the cross nervures white and the costal margin pale interrupted with quadrate dark areas. Front dark brown or black with a definite parallel margined white band.

Holotype, female, allotype, male and two female paratypes, taken in the Santa Rita Mts., Sept. 29, 1929 (labeled Tucson), one female Chiricahua Mts. Aug. 23, 1932, and one female Huachuca Mts. Oct. 9, 1932. All taken high in the mountains of southern Arizona by the author. The dark color alone will separate this from the others of the *nava* group.

Catonia indella Ball, n. sp.

Resembling *succinea* in form and structure; smaller with a narrower vertex, dark smoky brown with three light areas on dorsal line. Length female 6 mm.

Vertex distinctly narrower than in *succinea*, each lateral tablet nearly twice as long as wide, the pronotum slightly shorter than in *succinea*; the lateral carinæ definite and parallel instead of widely diverging and becoming obscure as in that species. The central tablet even narrower than in *producta*, narrower than the mesonotal tablet which is slightly expanded posteriorly. Elytra extremely long and slender, the outer claval nervure tied to the suture near the middle and twice at the posterior angle as in *producta*, the nodal cell an elongated egg-shape as in *succinea*. Front long and narrow, the sutures between front and clypeus strongly oblique near the margin then obscure.

Color, dark smoky brown above with the carinæ light. The front creamy above shading out to smoky on clypeus and black below. A pair of round black spots on the lateral foveate areas above. Pronotum with the central tablet dark, the rest pale with four black spots on each side. Apex of mesonotum and an area adjoining, pale, including the ivory bases of the inner claval nervures, the apices of the outer clavals, an area on the inner clavals and the membrane between, ivory white. The cross nervures apically ivory white and an area beyond clavus pale.

Holotype, female, taken in mountains above San Louis Obispo, Calif., June 22, 1931, by the writer. This is strikingly distinct in color and while it belongs with *producta* in having the narrow pronotal tablet its vertex is much shorter.

Catonia brunnella Ball, n. sp.

Resembling *rubella* in form and structure. Longer, darker, with an extremely long pronotum. Smoky testaceous, the slightly hyaline elytra with smoky apical spots. Length female 6 mm., male 5 mm.

Vertex scarcely as long as wide but little longer than the pronotum, base of front extending beyond vertex especially at sides, front short, much narrower than in *rubella*, short, convex, conically pointed, highly polished, with the lateral margins parallel. Pronotum very little produced between the eyes, very long, twice the length in *rubella*, the lateral margins longer than on the median line but lacking the sulcus of *Epiptera*. Elytra not as long and narrow as in *indella* but longer than in *rubella* and its allies; venation similar the nodal cell much longer and lacking the triangular division at base. Male abdomen with an attenuate triangular median projection that is longer than the ultimate segment and two-thirds the length of the widely separated strap-shaped plates that are apically rounded and beset with coarse hairs.

Color, uniform, light smoky brown, the face and carinæ unicolorous, nervures a trifle darker, a smoky band around apex of elytra broken into spots by the light margined apical nervures.

Holotype, female, Huachuca Mts. Oct. 9, 1932, allotype, male, and paratype male taken in the Santa Rita Mts. (labeled Tucson) Sept. 29, 1929; all taken in Arizona by the writer. This is a strikingly distinct species in the extremely long pronotum and the male genitalia. It is near the body color of *necopina* but more than twice its size.

Catonia constellata Ball, n. sp.

Resembling *necopina* in form and color, slightly broader. Pale cinnamon the nervures bordered with ivory dots. Length 4—4.5 mm.

Head including eyes a half circle, the sharply carinate vertex not reaching the apex. Vertex broader than long. Front convex slightly conical, highly polished, carinate towards apex, slightly expanded apically with the lateral carinæ almost foliaceous. Pronotum short, not over half the length of head as in *necopina*. Elytra broader than in *necopina* or *costata* with a simpler venation and a long stigma. Male abdominal projection about equilaterally triangular, the apex bluntly rounding, less than half as long as the ultimate segment. Plates broadly, obliquely spoon-shaped.

Color, pale, cinnamon, the pronotum and head paler. Longitudinal nervures concolorous, bordered with ivory dots or irregular transverse dashes; cross nervures ivory.

Holotype, female, allotype, male, and one female paratype taken by the writer at Colfax, Calif., June 8, 1909. Strikingly distinct in this group by the ivory dots.

Some Observations on the Swarming of Melanophila

In previous numbers of this Journal, Dr. E. C. Van Dyke recorded the swarming of *Melanophila consputa* Lec. at an oil fire[1] near Coalinga, Calif., and at a Sugar Refinery[2] in San Francisco. This peculiar habit has been witnessed by the writer on numerous occasions at grass or brush fires in the hills near Oakland, Calif. The beetles were greatly stimulated and very active, flying into the smoke and running rapidly about over hot coals and smoldering embers. They usually remain in the vicinity for several days after the fire has been extinguished and may be captured as they fly about the ashes and charred wood that remains. In the region near San Francisco Bay the species involved are *M. consputa* Lec. and *M. atropurpurea* Say. The swarming usually takes place in September and October and only an occasional specimen of either of these species may be captured earlier in the year.

In June, 1932, however, the writer found large numbers of *Melanophila* about the street lights at Douglas, Arizona. In an effort to account for their presence, it was concluded that they had been attracted to the city by the acrid fumes of the large smelter plant for which Douglas is noted. The beetles must have been drawn from a great distance as there is no coniferous forest within fifty or sixty miles. The species attracted in this manner were *M. notata* Cast., *M. consputa*, and *M. acuminata* DeG., with the latter species in predominance.

It is interesting to note that all of the species mentioned above are of the more elongate, slender type of *Melanophila*. At no time has the writer ever observed any of the short, broader species (*M. gentilis*, *M. intrusa*, *M. californica*, or *M. drummondi*) swarming in this manner.—E. Gorton Linsley.

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[1] Pan-Pacific Ent. III, p. 41, 1926.
[2] Pan-Pacific Ent. IV, p. 113, 1928.

OLIGOTHRIPS OREIOS A NEW GENUS AND SPECIES OF THRIPS BELONGING TO THE FAMILY OPADOTHRIPIDÆ BAGNALL

BY DUDLEY MOULTON

There are three genera already recognized in the family *Opadothripidæ* Bagnall, (Superfamily *Heterothripoidea* Bagnall), namely: *Opadothrips* Priesner, fossil, *Holarthrothrips* Bagnall from France and *Adiheterothrips* Ayyar from India. The species described here is the first in this family to be recorded from North America.

The superfamily is characterized as follows: antenna with nine segments, all freely movable; maxillary palpus with three, labial palpus with two segments; fore tarsus with a hook-shaped claw; wings narrowed and pointed at ends; ovipositor curved downward. The family *Opadothripidæ* is distinguished by the lanceolate shaped, two-segmented sense cones on antennal segments three and four.

In his description of the genus *Holarthrothrips*, Bagnall states: antennal segments "three and four markedly annular, broadened outwardly near apex to seat a special type of lanceolate sense-cone as in *Opadothrips*; the following (5-9) narrower, progressively less distinctly annular, long and cylindical". These characters hold also for *Adiheterothrips*.

The genus *Oligothrips* includes the characters enumerated above for superfamily and family but may at once be separated from the other three genera by the shape of the antennal segments which are relatively shorter, elongate-ovate rather than cylindrical in shape and with terminal segments sub-globate. It resembles *Holarthrothrips* in having well developed spines on the prothorax; these are reduced to setæ in *Adiheterothrips*.

Oligothrips oreios Moulton, n. sp.

Female holotype: Color of body, antennæ and legs dark brown, with third antennal segment, fore tibiæ and tarsi yellowish; wings light brownish; crescents of ocelli orange.

Total body length 1. mm.; head length .09 mm., width .130 mm.; prothorax length .123 mm., width .176 mm. Segments of antenna: length (width) I, 23 (24); II 36 (23); III, 43 (18); IV, 36 (20); V, 33 (16); VI, 33 (16); VII, 26 (16); VIII, 20 (13); IX, 16 (10); total 270 microns. Length of spines; on anterior angles of prothorax, 23 microns; on posterior angles, inner

60 microns, outer 53 microns; inner pair on posterior margin, 33 microns.

Head wider than long. Eyes prominent, pilose; ocelli well developed. A pair of small setæ behind each ocellus and series of four behind each eye, the second and fourth longest. Antennal segments three and four elongate ovate, only slightly enlarged toward tips, not conical or cylindrical; sense cones on these segments lanceolate, two-segmented, short.

Prothorax longer and wider than head; setæ on anterior angles directed forward; a series of seven on either side along posterior margin, one and three on angles longest, inner pair (six and seven) with base of seven close but anterior to six. Fore tarsus armed with a strong hook-shaped tooth. Wings broad at base, otherwise long, narrow, pointed at tips; costa with 28 spines and well developed fringe, fore vein with 21 and hind vein with 17 regularly placed spines.

Posterior margin of abdominal segments, including eighth, without fringe hairs.

Type material: Male holotype, 8 female paratypes taken in blossoms of madrone and manzanita, April, 1932. All types in author's collection.

Type locality: Grass Valley, Nevada County, California.

DERMAPTERA IN THE COLLECTION OF THE CALIFORNIA ACADEMY OF SCIENCE

BY MORGAN HEBARD

We were recently asked to study the present collection and among the one hundred and thirty-five specimens a number of interesting records have been found. Thirty-nine species are here considered, none of which are new. Two synonyms are suggested. We wish to thank Mr. E. P. Van Duzee for the opportunity to study this material.

Pygidicranidæ

Diplatys serverus Bormans Orizaba, Vera Cruz, Mexico, 1 ♂.

Pyge vitticollis (Stal) Victoria Park, Hong Kong, China, II, 17, 1929, (G. Linsley), 1 ♀, 1 large juv. ♀. The adult measures; total length 19, length of tegmen 2.3; length of forceps 4.1 mm.

Pyragra fuscata (Serville) Porto Bello, Panama, III, 17, 1930, (T. O. Zschokke; XX Plantation), 1 juv.

Echinosoma sumatranum (Haan) Mt. Poi. Sarawak. Borneo. 2000, 5450 and 6000 feet, (E. Mjoberg), 2 ♀. 1 large juv.

Echinosoma yorkense Dohrn North Queensland, Australia, X, 4, 1920, (J. A. Kusche), 2♀.

LABIDURIDÆ

Allostethus indicum (Burmeister) Mt. Poi, Sarawak, Borneo, (E. Mjoberg), 2♂, 1♀, 1 juv.

Psalis americana (Beauvois) Gatun, Canal Zone, Panama, III, 1930, (T. O. Zschokke; Tres Rios Plantation), 1 large juv.

Anisolabis maritima (Géné) Nanaimo, British Columbia, VI, 26, 1920, (E. C. VanDyke), 1♂, 1♀. Yakushima, Japan, IV, 1912. (J. C. Thompson), 3♂. Kagoshima, Japan, III, 1912, (J. C. Thompson), 1♂ (stenolabic). Ikishima, Japan, X, 1, 1910, (J. C. Thompson), 1 juv.♀. Lake Biwa, Japan, VII, 30, 1923, (E. C. VanDyke), 1 large juv. ♀.

Anisolabis eteronoma Borelli Mt. Tantalus, Oahu, Hawaiian Islands, I, 10, 1923, (E. C. VanDyke), 1♂ (small and pallid), 2♀ (normal).

Anisolabis marginalis Dohrn Mogi, Japan, VII, 7, 1923, (E. C. VanDyke), 1♀. Nanking, Kiang-Su, China, III, 31, 1923, (E. C. VanDyke), 2♂.

Euborellia punctata Borelli Nanking, Kiang-Su, China, III, 23 and 31, 1923, (E. C. VanDyke), 2♀.

The similarity to *Gonolabis* noted by Borelli is so marked that his generic assignment of the species may be open to question.

Euborellia annulipes (Lucas) Acapulco, Guerrero, Mexico, X, 28, 1909, (F. X. Williams, at quarantine), 1♀. Masa Tierra Island, Chile, XII, 4, 1913, (R. H. Beck), 1♂, 2♀. Yakushima, Japan, IV, 1912, (J. C. Thompson), 1♀.

Euborellia plebeja (Dohrn) Kagoshima, Japan, III, 1912, (J. C. Thompson), 1♂, 1♀, 1 juv. Kobe, Japan, III and X, 1909, 2♂ (one macropterous), 1 juv. Nanking, Kiang-Su, China, III, 23 and IV, 14, 1923, (E. C. VanDyke), 2♂, 1♀.

The limb annuli are almost obsolete in the Kobe and Nanking adults, very weak in the Kagoshima male and moderately pronounced in the others. The antennal joints are usually as characterized for *pallipes* Shiraki and we feel that that name may well prove a synonym, as *stali* Dohrn and *minuta* Caudell already have done. The macropterous condition is again recognized with interest.

Nala lividipes (Dufour) Kobe, Japan, X, 1909, 1♀.

Labidura riparia (Pallas) Kirin, Manchuria, IX, 7, 1923, (E. C. VanDyke), 1♂ (brachypterous), Riparia variant. Hoiryong, Corea, V, 21, 1911, (J. C. Thompson), 1♂, 2♀ (brachypterous), Japonica variant. Kobe, Japan, VI, 1909, 1♂, 1♀ (brachypterous), Japonica variant. Koro-en, Japan, III, 1909, 1♀ (brachypterous), Japonica variant.

LABIIDÆ

Vostox brunneipennis (Serville) Orizaba, Vera Cruz, Mexico, VII, 1897, (A. Koebele), 1♀.

Spongovostox apicedentatus (Caudell) Phoenix, Arizona, IV, 28, 1924, (J. O. Martin), 1♀. Maricopa, III, 20, 1924, (J. O. Martin), 1♂. Tucson, Arizona, IX, 5, 1928, (E. R. Leach), 2♀. Sonoita Creek, Patagonia, Arizona, X, 14, 1927, (J. A. Kusche), 1♂, 1♀.

Chætospania australica (Bormans) Northern Queensland, Australia, X, 4, 1920, (J. A. Kusche), 3♂.

Sphingolabis hawaiiensis (Bormans) Suva, Fiji Islands, XI, 3, 1899, (A. Koebele), 1♀.

Labia arcuata Scudder Gatun, Canal Zone, Panama, III, 1930, (T. O. Zschokke; Tres Rios Plantation), 1♂. Barro Colorado Island, Canal Zone, Panama, III, 31, 1930, (T. O. Zschokke), 1♀. Porto Bello, III, 17, 1930, (T. O. Zschokke; XX Plantation), 1♂.

Labia dorsalis (Burmeister) Gatun, Canal Zone, Panama, III, 1930, (T. O. Zschokke; Tres Rios Plantation), 1♂, 1♀. Porto Bello, III, 17, 1930, (T. O. Zschokke; XX Plantation), 1♂.

Marava wallacei ((Dohrn) North Queensland, Australia, X, 4, 1920, (J. A. Kusche), 1♂, 1♀ (brachypterous).

CHELISOCHIDÆ

Hamaxas fœ (Bormans) Mt. Poi, Sarawak, Borneo, (E. Mjoberg), 1♀.

Proreus sobrinus (Bormans) Mt. Poi, Sarawak, Borneo, (E. Mjoberg), 1♂.

Marked exactly like the Sumatran male recorded by us in 1927 and with pygidium the same, this specimen has the ultimate tergite with meso-distal pair of teeth smaller and laterad on each side with a curved ridge instead of two teeth. The forceps are more stenolabic, with no proximal flange, teeth even

smaller and, unlike that specimen, with a trace of meso-distal dorso-internal lamellation and a small subapical ventro-internal tooth.

Proreus simulans (Stal) Okinawa, Japan, IV, 1912, (J. C. Thompson), 1 ♀ (brachypterous). Nanking, Kiang-Su, China, III, 21 to IX, 25, 1923, (E. C. VanDyke), 4 ♂ (brachylabic), 1 ♀ (all brachypterous).

Chelisochella superba (Dohrn) Borneo, (E. Mjoberg), 1 ♂ (moderately macrolabic), 5 ♀ (macrolabic).

The female of this species has every appearance of males in other groups.

Adiathetus shelfordi Burr In 1929 our corrections for this species were twice at fault. Burr (not Shelford) figured the species in 1900, the male as his synonym *hercules*, the female (not a male as he supposed) as *shelfordi.*

The specimens in the author's collection from Pontianak, Borneo, are a very similar pair, not a macrolabic and a brachylabic male as we supposed. The present insect shows much the same peculiarities as *Chelisochella superba* in that the specialized macrolabic forceps of the female resemble the specialization peculiar to males in other groups. This is extremely unusual in the Earwigs.

FORFICULIDÆ

Anechura japonica (Bormans) Mokansan, Che-Kiang, China, IX, 22, 1927, (Mrs. Doris E. Wright), 1 ♂.

This specimen has sharp rugose cones, directed dorso-externally, above the bases of the forceps. The forceps are moderately and evenly curved with a large acute-angulate lamellate tooth at end of proximal third on inner margin directed ventro-internally. The limbs are uniform testaceous with a reddish tinge. The species looks much like an *Apterygida* but is decidedly more robust.

Anechura vara (Scudder) Amecameca, Mexico, VI, 6 and 8, 1897, (A. Koebele), 1 ♂, 1 ♀.

Taipinia crinitata Shiraki We agree with Shiraki in considering that his *Taipinia*, described in 1908, should be recognized. It is indeed close to *Anechura*, but the features which be gives in 1928, the pronotum considerably instead of somewhat smaller than the head (and in *crinitata* the spined pygidium), warrant generic recognition.

Taihorinsho, Formosa, IX, 1909, (H. Sauter), 1♂, 2♀, [Hebard Cln.]. Tainan, Foromsa, IV, 1♂, 1♀, determined by Burr, [Hebard Cln.].

Doru lineare (Eschscholtz) Las Mochis, Sinaloa, Mexico, VI, 12,1922, 1♀. Medellin, Antioquia, Colombia, (Mrs. C. S. Capp), 1♂.

Doru aculeatum aculeatum (Scudder) Sandusky, Ohio, VI, 1, 1924, (G. Linsley), 1♀.

Forficula senegalensis Serville Kijobe, Kenya, British East Africa, (F. Tose), 3♂ (brachylabic).

Forficula vicaria Semenoff Certainly *F. burriana* Semenoff is either a race or phase of *vicaria*, not a valid species.

Kirin, Manchuria, IX, 7, 1923, (E. C. VanDyke), 3♂. Weisohn, Manchuria, VIII, 31 and IX, 1, 1923, (E. C. VanDyke), 2♀. Fune, Corea, V, 29, 1911, (J. C. Thompson), 1♀. Nanking, Kiang-Su, China, IX, 10, 1923, (E. C. VanDyke), 1♂.

Forficula auricularia (Linnæus) Corvallis, Oregon, VI, 12, 1925, (E. P. Van Duzee), 1 juv. Poso Creek, Kern County, California, VI, 10, 1929, (G. D. Hanna), 4♂ (medium small to small, brachylabic). New Zealand, (A. Koebele), 3♀.

Forficula scudderi Bormans Semenoff's *robusta* is a synonym, as indicated by Shiraki in 1928. Burr apparently did not consider priority when he indicated the reverse synonymy in 1911.

Weisohn, Manchuria, VIII, 31, 1923, (E. C. VanDyke), 1♀. Kikouai, Yezo, Japan, VIII, 1910, (J. C. Thompson), 1♀.

Forficula mikado Burr Otaru, Hokkaido, Japan, VIII, 1910, (J. C. Thompson), 1♂ (very dark, brachylabic). Kikouai, Yezo, Japan, VIII, 1910, (J. C. Thompson), 1♂ (dark, brachylabic). Sapporo, Hokkaido, Japan, VII, 27, 1923, (E. C. VanDyke), 1♀ (pale, teneral).

Opisthocosmia centurio Dohrn Mt. Poi, Sarawak, Borneo, (E. Mjoberg), 1♀.

Cordax forcipatus (Haan) Mt. Poi, Sarawak, Borneo, (E. Mjoberg), 1♂. Borneo, (E. Mjoberg), 2♂, 5♀.

These specimens, though somewhat smaller and darker than our Sumatran individuals, have a whitish antennal annulus occupying part of two joints.

Paracosmia tolteca (Scudder) Orizaba, Vera Cruz, Mexico, VII, 1897, (A. Koebele), 3♀.